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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,564	07/10/2003	Jay P. Gore	3220-73090	2789

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EXAMINER	
POLYZOS, FAYE S	
ART UNIT	**PAPER NUMBER**
2878	

DATE MAILED: 05/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

E/C

Office Action Summary	Application No.	Applicant(s)	
	10/616,564	GORE ET AL.	
	Examiner	Art Unit	
	Faye Polyzos	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20,22,23 and 25* is/are rejected.

7)☒ Claim(s) *21 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/19/2004*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2, 7-12, 17-20, 22-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clarke (US 5,239,180 A) and Mendelson ("Blood Glucose Measurement by Multiple Attenuated Total Reflection and Infrared Absorption Spectroscopy," 1990, Vol. 37).

Regarding claim 1, Clarke discloses a method of measuring an amount of organic substance contained within a food product, the organic substance (food material) having an infrared absorption spectrum which includes a set (n) of wavelength regions, wherein each of the wavelength regions substantially corresponds to an absorption band of the absorption spectrum (col. 1, lines 56-68 and col. 2, lines 1-4), detecting the intensity of a number of selected wavelength bands of infrared electromagnetic radiation influenced by the organic substance contained within the food product with a detection system wherein each of the selected wavelength bands substantially corresponds to one of the wavelength regions; generating an electrical signal in response to detecting the intensity of the number of selected wavelength bands; receiving the electrical signal with a quantification algorithm (col. 3, lines 19-41); and processing the electrical signal with the quantification algorithm so as to provide a

measurement of the amount of organic substance contained within the food product (See Generally Figs. 5-6 and col. 3, lines 42-67). Clarke does not disclose the number of selected wavelength bands being equal to n-1 or less. Mendelson discloses measuring concentration in a sample with the number of selected wavelength bands being equal to n-1 or less (See Generally Fig. 4). Mendelson teaches wavelength bands being equal to n-1 or less can produce a strong absorption peak (pg. 460 and col. 1). Therefore, it would have been obvious to modify the method suggested by Clarke to comprise a wavelength bands as disclosed supra by Mendelson to allow for a more versatile apparatus.

Regarding claim 2, Clarke discloses a quantification algorithm of dividing a first wavelength band integrated absorbance value by a reference wavelength band integrated absorbance value (col. 2 lines 5-19).

Regarding claim 7, Clarke discloses a method of measuring an amount of a food material, which encompasses a vegetable seed oil, (col. 1, lines 56-63) in a food product, wherein the vegetable seed oil has an infrared absorption spectrum which includes a set (n) of infrared wavelength regions, wherein each of the infrared wavelength regions substantially correspond to an infrared absorption band of the infrared absorption spectrum (col. 1, lines 56-68 and col. 2, lines 1-4), comprising: detecting the transmittance of a number of selected wavelength bands of infrared electromagnetic radiation absorbed by the vegetable seed oil contained within the food product with a detection system, wherein each of the selected wavelength bands substantially corresponds to one of the wavelength regions, generating an electrical

signal in response to detecting the transmittance of the infrared electromagnetic radiation; receiving electrical signal with a signal processor configured to process the electrical signal with a quantification algorithm (col. 3, lines 19-41); and processing the electrical signal with the quantification algorithm so as to provide a measurement of the amount of vegetable seed oil contained within the food product. (See Generally Figs. 5-6 and col. 3, lines 42-67). Clarke does not disclose the number of selected wavelength bands being equal to n-1 or less. Mendelson discloses measuring concentration in a sample with the number of selected wavelength bands being equal to n-1 or less (See Generally Fig. 4). Mendelson teaches wavelength bands being equal to n-1 or less can produce a strong absorption peak (pg. 460 and col. 1). Therefore, it would have been obvious to modify the method suggested by Clarke to comprise a wavelength bands as disclosed supra by Mendelson to allow for a more versatile apparatus.

Regarding claim 8, Clarke discloses a quantification algorithm of dividing a first wavelength band integrated absorbance value by a reference wavelength band integrated absorbance value (col. 2 lines 5-19).

Regarding claims 9-10, Mendelson discloses detecting the intensity of about a 905 – 930 cm ^-1 wavelength band of infrared electromagnetic radiation being about 880 – 890 cm ^-1 wavelength band of infrared electromagnetic radiation (See Generally Fig. 4).

Regarding claim 11, Clarke discloses the food product includes food material, which encompasses the food extract olive oil (col. 1, lines 59-63).

Regarding claim 12, Clarke discloses a method of measuring an amount of milk fat (dairy product ingredient) (col. 1, lines 56-63) in a food product, wherein the milk fat has an infrared absorption spectrum which includes a set (n) of infrared wavelength regions, wherein each of the infrared wavelength regions substantially correspond to an infrared absorption band of the infrared absorption spectrum (col. 1, lines 56-68 and col. 2, lines 1-4), comprising: detecting the transmittance of a number of selected wavelength bands of infrared electromagnetic radiation absorbed by the vegetable seed oil contained within the food product with a detection system, wherein each of the selected wavelength bands substantially corresponds to one of the wavelength regions, generating an electrical signal in response to detecting the transmittance of the infrared electromagnetic radiation; receiving electrical signal with a signal processor configured to process the electrical signal with a quantification algorithm (col. 3, lines 19-41); and processing the electrical signal with the quantification algorithm so as to provide a measurement of the amount of vegetable seed oil contained within the food product. (See Generally Figs. 5-6 and col. 3, lines 42-67). Clarke does not disclose the number of selected wavelength bands being equal to n-1 or less. Mendelson discloses measuring concentration in a sample with the number of selected wavelength bands being equal to n-1 or less (See Generally Fig. 4). Mendelson teaches wavelength bands being equal to n-1 or less can produce a strong absorption peak (pg. 460 and col. 1). Therefore, it would have been obvious to modify the method suggested by Clarke to comprise a wavelength bands as disclosed supra by Mendelson to allow for a more versatile apparatus.

Regarding claim 17, Clarke discloses a method of measuring a concentration of an organic substance contained within a food product (col. 1, lines 56-63), the organic substance having an infrared absorption spectrum which includes a set (n) of infrared wavelength regions, wherein each of the infrared wavelength regions substantially correspond to an infrared absorption band of the infrared absorption spectrum, comprising: detecting the transmittance of a number of selected wavelength bands of infrared electromagnetic radiation absorbed by the organic substance contained within the food product with a detection system, wherein each of the selected wavelength bands substantially corresponds to one of the wavelength regions, generating an electrical signal in response to detecting the transmittance of the selected infrared electromagnetic radiation wavelength bands (col. 3, lines 36-55); receiving the electrical signal with a signal processor configured to process the electrical signal with a mathematical model and processing the electrical signal with the mathematical model so as to provide a measurement of the concentration of the organic substance contained with the food product (See Generally Figs. 2 and 5-6, col. 3, lines 57-68 and col. 2, lines 5-19 and col. 4, lines). Clarke does not disclose the number of selected wavelength bands being equal to n-1 or less. Mendelson discloses measuring concentration in a sample with the number of selected wavelength bands being equal to n-1 or less (See Generally Fig. 4). Mendelson teaches wavelength bands being equal to n-1 or less can produce a strong absorption peak (pg. 460 and col. 1). Therefore, it would have been obvious to modify the method suggested by Clarke to comprise a

wavelength bands as disclosed supra by Mendelson to allow for a more versatile apparatus.

Regarding claims 18-19, Clarke discloses the transmittance of the selected electromagnetic radiation wavelength bands absorbed by food material: meat, poultry, fish, seafood, fruit, vegetables, cereals, grains, seeds, dairy products, and beverages as well as food extracts, ingredients, nutrients and /or additives, contained within the food product with the detection system (col. 1, lines 56-65).

Regarding claim 20, Clarke discloses dividing a first wavelength band integrated absorbance value by a reference wavelength band integrated absorbance value (col. 2 lines 5-19).

Regarding claim 22, Clarke discloses a method of measuring an organic substance (food material) (col. 1, lines 56-63) contained within a food product, the organic substance having infrared absorption spectrum which includes a set (n) of wavelength regions, wherein each of the wavelength regions substantially corresponds to an absorption band of the absorption spectrum, comprising: illuminating the food product with infrared electromagnetic radiation, wherein the infrared electromagnetic radiation includes one or more wavelength bands of infrared electromagnetic radiation which are absorbed by the organic substance contained within the food product (col. 2, lines 5-29); selecting a number the wavelength bands of the infrared electromagnetic radiation, wherein each of the selected wavelength bands substantially corresponds to one of the wavelength regions and the number of the selected wavelength bands is a subset of (n); detecting the intensity of only the subset of the selected wavelength

bands absorbed by the organic substance (food material) contained within the food product with a detection system and the number of reference wavelength bands; generating one or more electrical signals in response to detecting the intensity of only the subset of the selected wavelength bands (col. 3, lines 36-55); receiving the one or more electrical signals with a signal processor configured to process the electrical signals with a quantum algorithm (col. 3, lines 19-41); and processing the one or more electrical signals with the quantification algorithm so as to provide a measurement of the amount of the organic substance (food material) contained within the food product (See Generally Figs. 5-6 and col. 3, lines 42-67).

Regarding claim 23, Clarke discloses a method of measuring an organic substance (food material) (col. 1, lines 56-63) contained within a food product, the organic substance having infrared absorption spectrum which includes a set (n) of wavelength regions, wherein each of the wavelength regions substantially corresponds to an absorption band of the absorption spectrum, comprising: illuminating the food product with infrared electromagnetic radiation (col. 2, lines 5-29); detecting the intensity off the infrared electromagnetic radiation that is absorbed by the organic substance (food material) contained within the food product, wherein the intensity detected is restricted to a number of selected wavelength bands of infrared electromagnetic radiation each of the selected wavelength bands substantially corresponds to one of the wavelength regions and the number of the selected wavelength bands is a subset of (n) (col. 3, lines 36-55); generating an electrical signal in response to detecting the intensity of the subset of the selected wavelength bands; receiving the electrical signals with a

signal processor configured to process the electrical signals with a quantum algorithm (col. 3, lines 19-41); and processing the electrical signals with the quantification algorithm so as to provide a measurement of the amount of the organic substance (food material) contained within the food product (See Generally Figs. 5-6 and col. 3, lines 42-67).

Regarding claim 25, Clarke discloses a method of measuring an organic substance (food material) (col. 1, lines 56-63) contained within a food product, the organic substance having infrared absorption spectrum which includes a set (n) of wavelength regions, wherein each of the wavelength regions substantially corresponds to an absorption band of the absorption spectrum, comprising: illuminating the food product with infrared electromagnetic radiation, wherein the infrared electromagnetic radiation includes one or more wavelength bands of infrared electromagnetic radiation which are absorbed by the organic substance contained within the food product (col. 2, lines 5-29); selecting a number the wavelength bands of the infrared electromagnetic radiation, wherein each of the selected wavelength bands substantially corresponds to one of the wavelength regions and the number of the selected wavelength bands is a subset of (n); detecting with a detection system the intensity of the infrared electromagnetic radiation (col. 3, lines 19-25); and processing with a mathematical model spectral data only from the subset of the selected wavelength bands absorbed by the organic substance (food material) contained within the food product (col. 2 lines 5-19).

3. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Clarke (US 5,239,180 A)* and *Mendelson ("Blood Glucose Measurement by Multiple Attenuated Total Reflection and Infrared Absorption Spectroscopy," 1990, Vol. 37)* as applied to claim 1 above, and further in view of *Passaloglou-Emmanouillidou ("A comparative study of UV spectrophotometric methods for detection of olive oil adulteration by refined oils", Vol. 191).*

Regarding claims 3 and 5, Mendelson discloses measuring concentration in a sample with the number of selected wavelength bands being equal to n-1 or less (See Generally Fig. 4). Neither Mendelson nor Clarke disclose of detecting the transmittance of about 905 – 930 cm ^-1 wavelength band of infrared electromagnetic radiation being about 880 – 890 cm ^-1 wavelength band of infrared electromagnetic radiation. *Passaloglou-Emmanouillidou* discloses detecting the intensity of about a 905 – 930 cm ^-1 wavelength band of infrared electromagnetic radiation being about 880 – 890 cm ^-1 wavelength band of infrared electromagnetic radiation (See Generally Figs. 1A,B). Since the transmittance in this wavelength band is effective for the determination of an organic substance such as; olive oil, as described by *Passaloglou-Emmanouillidou,* it would have been obvious to one skilled in the art to modify the method suggested by Clarke and Mendelson to comprise of the wavelength band as disclosed supra by *Passaloglou-Emmanouillidou* to allow for a more versatile apparatus.

Regarding claims 4 and 6, *Passaloglou-Emmanouillidou* discloses detecting the intensity of about a 2905 – 2945 cm ^-1 wavelength band of infrared electromagnetic radiation being about 2840 – 2870 cm ^-1 wavelength band of infrared electromagnetic

radiation (See Generally Fig. 1). Since the transmittance in this wavelength band is effective for the determination of an organic substance such as; olive oil, as described by *Passaloglou-Emmanouillidou,* it would have been obvious to one skilled in the art to modify the method suggested by Clarke and Mendelson to comprise of the wavelength band as disclosed supra by *Passaloglou-Emmanouillidou* to allow for a more versatile apparatus.

4. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Clarke (US 5,239,180 A)* and *Mendelson ("Blood Glucose Measurement by Multiple Attenuated Total Reflection and Infrared Absorption Spectroscopy," 1990, Vol. 37)* as applied to claim 12 above, and further in view of *Lefier et al ("Determination of Fat, Protein, and Lactose in Raw Milk by Fourier Transform Infrared Spectroscopy and by Analysis with a Conventional Filter-Based Milk Analyzer", 1996, Vol. 79).*

Regarding claims 13, Mendelson discloses measuring concentration in a sample with the number of selected wavelength bands being equal to n-1 or less (See Generally Fig. 4). Mendelson nor Clarke disclose of detecting the transmittance of about 2905 – 2945 cm^-1 wavelength band. *Lefier* discloses detecting the transmittance of about 2905 – 2945 cm^-1 wavelength band of infrared electromagnetic radiation (pg. 713 and col. 1). Since the transmittance in this wavelength band is effective for the determination of milk fat as described by *Lefier*, it would have been obvious to one skilled in the art to modify the method suggested by Clarke and Mendelson to comprise of the wavelength band as disclosed supra by *Lefier* to allow for a more versatile apparatus.

Regarding claims 14-16, *Lefier* discloses detecting the transmittance of about 2840 – 2870 cm^-1 wavelength band of infrared electromagnetic radiation (pg. 713 and col. 1).

Allowable Subject Matter

5. Claims 21 and 24 are objected to as being dependent upon a rejected based claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Regarding dependent claim 21, the prior art, as stated supra, does not disclose or fairly suggest of a mathematical model includes an algorithmic equation, as disclosed in claim 21, to measure the concentration of an organic substance.

Regarding dependent claim 24, the prior art, as stated supra, does not disclose or fairly suggest of detecting the intensity of one or more reference wavelengths band of infrared electromagnetic radiation which are not absorbed by the organic substance contained in the food product.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Faye Polyzos whose telephone number is 571-272-

2447. The examiner can normally be reached on Monday thru Friday from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FP

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